REMARKS

Claims 1-16 are all the claims pending in the application. By this Amendment, Applicant amends claim 9 to further clarify the invention. In addition, by this Amendment, Applicant cancels claim 11 and changes the dependency of claim 12. Claim 12 now depends on claim 9, instead of the canceled claim 11. Some minor amendments to other claims avoid potential informalities without narrowing the scope of the claims.

Summary of the Office Action

The Examiner withdrew the previous rejection. The Examiner, however, found new grounds for rejecting claims 1-16. In particular, claims 1-16 stand rejected under 35 U.S.C. § 103(a).

Claims 1 and 4-6 are rejected as being unpatentable over U.S. Patent No. 6,223,037 to Parkkila (hereinafter "Parkkila") in view of a newly found reference, U.S. Patent No. 6,807,163 to Shi (hereinafter "Shi"), claims 9-14 are rejected as being unpatentable over U.S. Patent No. 6,343,070 to Klas et al. (hereinafter "Klas") in view of U.S. Patent No. 6,011,960 to Yamada et al. (hereinafter "Yamada"). In addition, claims 2 and 3 are rejected as being obvious over Parkkila in view of Shi and U.S. Patent No. 5,701,585 to Kallin et al. (hereinafter "Kallin"), claims 7 and 8 are rejected as being obvious over Parkkila in view of Shi and further in view of U.S. Patent No. 6,418,318 to Bamburak et al. (hereinafter "Bamburak"), claim 15 is rejected as being obvious over Parkkila in view of Shi and U.S. Patent No. 6,282,419 to Findikli (hereinafter "Findikli"), and claim 16 is rejected as being unpatentable over Yamada in view of Findikli.

Claim Rejections under 35 U.S.C. § 103

Claims 1-16 stand rejected under 35 U.S.C. § 103(a). Applicant respectfully traverses this rejection in view of the comments, which follow.

Claims 1 and 4-6

Claims 1 and 4-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Parkkila in view of Shi. Applicant respectfully traverses this rejection in view of the following remarks.

Of the rejected claims, only claim 1 is independent. Independent claim 1 recites a unique combination of features including:

> when signal intensity was approximately constant before the search, using one or more sequences each associated with a predetermined list of frequencies from all of said frequencies, and wherein when signal intensity is not approximately constant before the search, scanning all of said frequencies.

The Examiner asserts that claim 1 is directed to a method of connecting a terminal to a network and is obvious in view of Parkkila and Shi (see pages 2 and 3 of the Office Action). The Examiner acknowledges that Parkkila fails to disclose the scanning when the signal intensity is constant before the search (see page 2 of the Office Action).

The Examiner, however, alleges that Shi cures the deficient teachings of Parkkila. In particular, the Examiner alleges that Shi's teaching of varying scanning in response to operating environment is equivalent to when signal intensity was approximately constant before the search, scanning using one or more sequences each associated with a predetermined list of frequencies from all said frequencies, as set forth in claim 1 (see page 3 of the Office Action). Applicant respectfully disagrees.

Shi teaches a method of scanning a predetermined subset of channels or performing a full scan based on the operating environment of the handset (col. 5, lines 4 to 15). In Shi, the operating environment includes, among other factors, the received signal strength indication (col. 3, lines 50 to 66). In particular, Shi teaches that the handset maintains in memory a channel history table containing information about other available radio channels. The information stored includes, for example, the identity of the base station to which the mobile station is currently locked, a received signal strength indication (RSSI - an indication of how strong or how close a base station is relative to the mobile station), an indication of a specific channel which is the least interfered with for a given base station, and an indication of a quality of the channel (Fig. 1; col. 3, lines 50 to 67).

Shi further teaches an adaptive scan rate evaluation process 402 and a channel scan process 404. The adaptive scan rate evaluation process 402 receives as inputs a number of listen before talk (LBT) channels 406, RSSI information 408, and other channel information 410. The process 402 operates on data stored in a channel history table during the previous channel scanned by the channel scan process 404. The process 402 determines if there are any other base stations (RFPs) for which the RSSI exceeds the RSSI of the currently locked base station by a value MdB. This condition monitors the user mobility in the system. If the user of the handset is moving toward the overlap area of the cells, the scan rate should be increased to capture the handover moment. That is, the process 402 determines a scan rate interval or duration (SRI) 412 and a short scan indicator (SSI) 414. These two parameters are provided to the channel scan process 404. The SSI 414 is used by the channel scan process 404 to determine whether the next scan should be a short scan or a normal scan. Since the values for SRI and SSI are adaptive,

meaning that they are varied in response to the operating environment of the mobile station, the channel scan interval and scan rate are therefore adaptive (Fig. 4; col. 4, line 21 to col. 5, line 10).

Finally, Shi teaches that, at step 520, the method checks if the total number of LBT channels of frequency carrier number 0 and 1 are more than N, where N is a constant which can be determined for the particular case. An LBT channel is a channel at a predefined time slot and carrier location in the channel space having an average RSSI value below a predefined lower threshold. Step 520 sums the number of LBT channels for the first two carriers at the edge of the frequency band under consideration. In Shi, if the test of step 520 is satisfied, the short scan indicator (SSI) is set equal to 1, where the SSI is an integer ranging from 0 to 1 and is set according to the processing of the data produced by the channel scanning (Fig. 5, col. 6, lines 14 to 61).

Shi, however, teaches only averaging the RSSI, and comparing it to a threshold. That is, Shi teaches setting the scanning based on the operating environment but the operating environment utilized in Shi is very different from the features of claim 1. In Shi, the rate interval and an indicator is set in accordance with a channel history table, which has an RSSI. Shi does not teach or suggest taking into account whether the signal intensity was constant or not constant before the search. Shi only teaches using the RSSI to compare it to a threshold.

Therefore, "when signal intensity was approximately constant before the search, using one or more sequences each associated with a predetermined list of frequencies from all of said frequencies, and wherein when signal intensity is not approximately constant before the search, scanning all of said frequencies," is not suggested or taught by the combined teachings of

Parkkila and Shi. Together, Parkkila and Shi, taken alone or in any conceivable combination, fail to teach or suggest scanning a predetermined set of frequencies when intensity is constant before the search or otherwise scanning all of the frequencies. For at least these exemplary reasons, Applicant respectfully submits that independent claim 1 is patentable over the combined teachings of the two references. Applicant, therefore, respectfully requests the Examiner to reconsider and to withdraw this rejection of independent claim 1. Also, Applicant respectfully submits that claims 4-6 are allowable at least by virtue of their dependency on claim 1.

Claims 2 and 3

Claims 2 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Parkkila in view of Shi and further view of Kallin. Applicant respectfully traverses this rejection with respect to the dependent upon claim 1, claims 2 and 3. Applicant has already demonstrated that the combined teachings of Parkkila and Shi do not meet all the requirements of independent claim 1. Kallin is relied upon only for its teaching of ranking the cells according to their importance. That is, Kallin teaches that the order of the list in which the search is performed can be varied based on a present environment or on a prior knowledge (col. 4, lines 31 to 45). Kallin, however, fails to cure the deficiencies in Parkkila and Shi. Kallin only teaches that since measuring the signal strength and other characteristics of the cell is usually limited to a maximum number of 12, 20 or 32, it may be beneficial to pre-select these 12, 20 or 32 cells (col. 1, lines 20 to 50). The cells can be ranked by a quality of service and a type (col. 2, lines 8 to 16).

In short, Kallin does not compensate for the above-identified deficiencies of the combined teachings of Parkkila and Shi. Together, the combined teachings of these three

references would not have (and could not have) led the artisan of ordinary skill to have achieved the subject matter of claim 1. Since claims 2 and 3 are dependent upon claim 1, they are patentable at least by virtue of their dependency.

Claims 7 and 8

Claims 7 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Parkkila in view of Shi and further in view of Bamburak. Applicant respectfully traverses this rejection with respect to the dependent upon claim 1, claims 7 and 8. Applicant has already demonstrated that the combined teachings of Parkkila and Shi do not meet all the requirements of independent claim 1.

Bamburak is relied upon only for its teaching of determining the last frequency band of the last service provider before the disconnection. That is, Bamburak teaches that after a power up, the mobile station checks the most recently used control channel to determine whether an optimal service provider is available on the channel. If this optimal service provider is not obtainable, then the MS searches through the frequency spectrum in a pre-determined order until an optimal or acceptable service provider is located (col. 3, lines 45 to 67). In short, Bamburak does not compensate for the above-identified deficiencies of the combined teachings of Parkkila and Shi. Together, the combined teachings of these references would not have (and could not have) led the artisan of ordinary skill to have achieved the subject matter of claim 1. Since claims 7 and 8 are dependent upon claim 1, they may be patentable at least by virtue of their dependency.

Claims 9-14

Claims 9-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Klas in view of Yamada. Claim 9 recites a unique combination of features including "means for determining what type of scanning to perform based on whether signal intensity is constant before a periodic search of the radio communication network for a signal." The Examiner asserts that claim 9 is directed to a terminal adopted to connect to a radiocommunication network and is unpatentable over Klas in view of Yamada. The Examiner acknowledges that Klas fails to disclose the scanning when the signal intensity is constant before the search (see page 6 of the Office Action).

The Examiner, however, alleges that Yamada cures the deficient teachings of Klas. In particular, the Examiner alleges that Yamada's automatic mode selection which consists of an Initial Cache Scan and a Full scan based on the type of wireless system and the received RSSI is equivalent to the means for determining what type of scanning to perform as set forth in claim 9 (see page 6 of the Office Action). Applicant has carefully studied Yamada's discussion of the automatic mode selection and such teachings are very dissimilar.

Yamada teaches a personal communication system (PCS) handset capable of operating within a cellular mobile telephone system (CMTS) or a wireless telephone system (WTS), which automatically enters the WTS mode whenever it locates an accessible WTS system (col. 2, line 66 to col. 3, line 2). In particular, Yamada teaches a handset that stores a cache list 92 with most recently accessed WTS control channels and their associated SID, and a channel table 94. The channel table 94 maintains a list of channels for which a valid PCS overhead message has been received, indicating that the channel is a WTS control channel. This channel table 94 includes the channel number, the SID associated with that channel number and the RSSI measured for

that channel (Fig. 5, col. 12, lines 5 to 32). In addition, the handset 50 stores a list 96 that consists of bad SID (col. 12, lines 32 to 35).

In Yamada, when the handset 50 is set to an automatic mode selection, it is desirous for the PCS handset 50 to automatically select and promptly lock on to an authorized system within its range, that is, either a WTS or a CMTS system. Further, when in the WTS mode, it is desirous for the PCS handset 50, whether a dual-mode handset or one which only operates in WTS mode, to always attempt to remain within the WTS in which it is currently operating. To accomplish this, the PCS handset 50 performs certain scans (col. 12, lines 36 to 45).

Yamada teaches performing cache scan every sixty seconds and then a full scan every five minutes to look for the presence of the WTS control channel. If an appropriate digital signal pattern is received indicating that the channel is operating as a WTS control channel, then that channel number, the corresponding WTS SID transmitted on the control channel and its RSSI (measured by the signal quality analyzer 74) are stored in the channel table 94. After all the channels in the cache list 92 have been scanned and the channel table 94 is created, the PCS handset 50 selects the strongest channel (*i.e.*, the channel having the largest RSSI) whose associated SID is not a bad SID from the list 96, and attempts to register on that channel. If registration is successful, the cache list is updated and the PCS handset goes into the WTS mode using this control channel. When the registration is not successful, the PCS handset 50 scans the next strongest channel in the channel table 94 and so on until the channel table 94 is emptied or until the registration is successful. In the initial cache scan process, a bad SID list 96 is created and the SIDs of those WTS system control units which deny a registration request (so called bad SIDs) are deleted from the cache list 92 and the corresponding channels are deleted from the

cache list 92 and the channel table 94. As a consequence, subsequent registration attempts are not again attempted on these control channels (col. 13, lines 35 to 63).

In other words, Yamada teaches selecting channels for the cache based on whether these channels are the WTS control channels. Once the table 94 is created, the handset 50 selects the channel with the strongest signal based on the stored signal strength and attempts to register on this channel. If it does not succeed, the channel is stored in the bad SID list 96 and the handset tries the channel with the next strongest signal. When this initial cache scan fails, the handset performs a full scan.

Yamada, however, teaches performing the full scan when the initial scan fails. The initial scan fails when no WTS control channels are found. In short, Yamada teaches that the type of scanning to perform depends on whether the WTS control channel is found, whereas the signal strength is only used to select the next channel from the list of channels to be checked. That is, the signal strength is only used to select the next channel for a check. Yamada teaches only selecting a channel based on the signal strength, and the type of scanning to perform is based on the SIDs. In other words, in Yamada, the type of scanning to perform is determined by the presence or absence of the WTS control channel and not the signal intensity.

Moreover, Yamada does not teach or suggest determining which type of scan to perform based on whether the signal intensity was constant. That is, Yamada does not teach or suggest analyzing whether the signal intensity is constant, as acknowledged by the Examiner (see page 12 of the Office Action). In sum, Yamada does not teach or suggest determining the type of scanning to perform based on whether the signal intensity before the search was constant.

Therefore, "means for determining what type of scanning to perform based on whether signal intensity is constant before a periodic search of the radio communication network for a signal," as set forth in claim 9 is not suggested or taught by the combined teachings of Klas and Yamada, which lack determining the type of scanning to perform based on whether the received signal intensity is constant before the search. For at least these exemplary reasons, Applicant respectfully submits that independent claim 9 is patentable over the combined teachings of Klas and Yamada. Applicant, therefore, respectfully requests the Examiner to reconsider and withdraw this rejection of independent claim 9. Also, Applicant respectfully submits that claims 10-13 are patentable at least by virtue of their dependency on claim 9.

Moreover, with respect to claim 13, Yamada clearly fails to teach or suggest performing various types of scans based on the signal intensity before the search. In Yamada, the WTS cache scan is performed either at the end of conversation, when a loss of signal occurs or when the cache scan timer times out (col. 14, lines 25 to 30). Yamada, however, does not teach or suggest that the scan will vary based on how the loss of signal occurred. In other words, Yamada is not concerned with whether the signal was lost because the handset entered a tunnel or because it has left the servicing cell. In short, in Yamada, the types of scans that will be performed do not depend on the signal intensity before the search. In fact, in Yamada, the same types of scans are performed when any kind of signal loss occurs, irregardless of whether the signal intensity was relatively constant or varying before the loss. For at least this additional reason, dependent claim 13 is patentable over the combined teachings of Klas and Yamada.

Next, the Examiner again rejected claim 14 as being unpatentable over the combined teachings of Klas and Yamada. ***Claim 14, however, depends on claim 1 and not claim 9***. The

combined teachings of Klas and Yamada fail to teach or suggest the recitations of claim 1, and ***the Examiner does not allege that these combined teachings teach the subject matter of claim 1***. Therefore, this rejection of claim 14 is clearly improper.

Moreover, with respect to claim 14, the combined teachings of Klas and Yamada, as well as the combined teachings of Parkkila and Shi do not teach or suggest performing a partial scan when the signal intensity before the search is relatively constant and performing a full scan when the signal intensity before the search is varied. Therefore, claim 14 is patentable for at least this additional reason..

Claim 15

Next, Applicant address the Examiner's rejection of claim 15 as being obvious over the combined teachings of Parkkila in view of Shi and further in view of Findikli. Applicant respectfully traverses in view of the following comments.

Applicant respectfully traverses this rejection with respect to the dependent upon claim 1, claim 15. Applicant has already demonstrated that the combined teachings of Parkkila and Shi do not meet all the requirements of independent claim 1.

Findikli does not cure the deficient teachings of Parkkila and Shi. Findikli discloses that whenever the acceptable service provider is unavailable, performing one or more partial scans before performing a full scan based on the various flags and conditions (col. 3, lines 38 to 48). In particular, Findikli discloses if the CCH_FLAG is set (*i.e.*, a flag utilized to monitor control channel changes), then the value of a quick_trigger_control flag is set checked. The quick_trigger_control flag determines which event disables the quick trigger, partial or powerup. If it is determined that partial rescans control quick scanning, the control transfers to box 80;

otherwise control transfers to box 86. In box 80, the quick_trigger_counter is incremented and a determination is then made (box 82) whether the value of the quick_trigger_counter equals a QUICK_TRIGGER_LIMIT. If such equivalence is attained (box 82), indicating that a sufficient number of the controlling events (partial rescans in this instance) have occurred, then the quick trigger flag 30 is disabled (box 84) and control transfers to box 86; otherwise, control reverts to box 86 (col. 7, lines 6 to 19).

Moreover, Findikli discloses a triggered partial scan is then performed (box 86) in an attempt to locate the aforementioned previously temporarily unavailable Acceptable SP and a determination is made whether such an Acceptable SP has been found (box 88) during the partial scan. If yes, the aforementioned quick trigger flag 30 is enabled (box 56), in order to allow quick scans to be used in the event this Acceptable SP is lost and an Unacceptable SP is found, and the MS 20 camps (box 58) (col. 7, lines 20 to 28).

Findikli, however, only teaches performing various searches when the control channel is changed. No where throughout Findikli's disclosure is it taught or suggested that the intensity of the signal, *i.e.*, whether it is constant or not before the search, plays a role on what kind of searches to perform. In short, Findikli does not cure the deficient teachings of Parkkila and Shi.

Therefore, "when signal intensity was approximately constant before the search, using one or more sequences each associated with a predetermined list of frequencies from all of said frequencies, and wherein when signal intensity is not approximately constant before the search, scanning all of said frequencies," as set forth in claim 1, is not suggested or taught by the combined teachings of Parkkila, Shi, and Findikli. Consequently, claim 15 is patentable at least by virtue of its dependency on claim 1.

Claims 16

The Examiner rejected claim 16 as being unpatentable over the combined teachings of Yamada in view of Findikli. Applicant respectfully traverses this rejection, in view of the following comments.

Among a number of unique features, claim 16 recites: "wherein the periodical network search comprises: when the signal intensity of the terminal is approximately constant before the periodic network search, executing a partial frequency scanning, and when the signal intensity of the terminal is not approximately constant before the periodic network search, performing a full scanning of all the frequencies." The Examiner acknowledges that Yamada does not teach or suggest signal intensity being constant or not, as set forth in claim 16. The Examiner, however, alleges that Findikli cures the deficient teachings of Yamada. Applicant respectfully disagrees.

As detailed above, with respect to claim 15, Findikli only teaches performing various searches when the control channel is changed. No where throughout Findikli's disclosure is it taught or suggested that the intensity of the signal, *i.e.*, whether it is constant or not before the search, plays a role on what kind of searches to perform. In short, Findikli does not cure the deficient teachings of Yamada. For at least these exemplary reasons, claim 16 is patentable over the combined teachings of Yamada and Findikli. Therefore, Applicant respectfully requests the Examiner to withdraw this rejection of claim 16.

Conclusion and request for telephone interview

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: May 9, 2005

Attorney Docket No.: Q64570